Cadastral Core Data
Draft Report – October 2001
Version 2

1. Background

Cadastral core data is a minimum set of attributes about land parcels that is used for publication and distribution of cadastral information by cadastral data producers and maintainers. The core data is intended to provide sufficient information to support integrating basic land parcel information across jurisdictional boundaries and answering fundamental questions for business processes that need cadastral information.

The definition of cadastral core data supports initiatives from the Western Governor's Association (WGA) Cadastral Forum and the Eastern States Cadastral National Spatial Data Infrastructure (NSDI).

National standards are important for effective communication and integration of cadastral information. These standards include consistent data transfer standards for data sharing, metadata describing the currency, source, and lineage, and the definition of core cadastral data. The standards should be open, extensible, and easy to use and apply. All standards need to have an implementation plan and a definition of compliance.

The Cadastral Core Data definition includes adopting national standards as a policy and developing mechanisms to follow through on the policy. Supporting and developing the standards will be an ongoing effort.

Some of the characteristics of Cadastral Core data are:

Attributes are as important as spatial information in terms of using cadastral information for decision support.

Core data activities include improving existing information quality and other updates.

There will need to be an evaluation criteria for updating core data including the Bureau of Land management's (BLM) Geographic Coordinate Database (GCDB) and a transfer standard for core data.

Core data will need to be defined in the context of business processes. That is, the core data needs to support applications for business processes.

The core data definition needs to include the entire nation.

The steps to develop the core data are:

Formalize core data definition and its purpose in the context of data production business process, data analysis, data publication and other needs.

Identify a Core Data Development Team

Identify Core Data Review Teams, as needed, which will include western and eastern states, tribal interests, and all levels of government

Develop proposed core data elements

Distribute proposed core data for broader review

Test Core Data content with multiple jurisdictions and business needs

Adopt core data elements

2. Current Status

As of October 2001, the core data elements have been distributed for broader review and this version reflects comments received as of October 2001. Efforts are underway to define a core data prototype and to seek funding for that prototype.

3. Summary of Elements

The Cadastral Core Data have been summarized into three groups: Spatial Reference, Cadastral Reference, and Parcels.

Spatial Reference - This is the geodetic and geographic control necessary to reference parcel information to a real world coordinate system. Every application and business process that was examined in the development of the Core Data implied or explicitly stated the need for this underlying reference. Spatial reference begins with geodetic network system that can be densified with a High Accuracy Reference Network (HARN) and then further extended to base maps and orthophotography. One key point is that orthophotography for cadastral information must be at one foot pixel or smaller resolution with the associated vertical information to support the generation of the orthophotography.

Cadastral Reference - This is the information necessary to fit the parcel information into a continuous and related fabric. In the public domain states, the Public land Survey System (PLSS) is a key component of the cadastral reference. In non-public domain state and even in the PLSS states there are other cadastral reference systems that form a hierarchy for nesting parcel information. In the eastern states the base map and orthophotography (at one foot or smaller resolution) helps define these cadastral reference features. The natural nesting of legal descriptions from municipal boundaries to subdivision exteriors to blocks and lots also forms this cadastral reference.

Parcels - This is the parcel core information. Once the reference systems have been established this is the core information about parcels. The core elements should be extensive enough to support fully the first responder type questions of a business process and allow for the

integration of cadastral information across jurisdiction. These first responder or triage type questions are called essential business processes in the analysis of the Core Data content requirements.

4. Cadastral Core Data Elements

The candidate core elements in each of the categories are as follows.

4.1 Spatial Reference

The National Geodetic Reference System (NGRS) - This is coordinated and managed by the National Geodetic Survey and provides a consistent and uniform definition of coordinate system, datums and monumented points throughout the country.

Orthophotography - This is orthophotography at one foot or smaller resolution that is tied to the NGRS and is current. The orthophotography includes the underlying terrain model to support the generation of the orthophotography and basic terrain information such as break lines.

4.2 Cadastral Reference

Corners of Common Usage – These are corners or reference points that are used extensively by land surveyors and others to generate legal descriptions and surveys. These might be points of commencing, corners common to several land divisions, or corners of the Public Land Survey System. In areas covered by the Public Land Survey System corners of common usage are often section corners, but it may not be all section corners. There is often a subset of PLSS corners that used more frequently and are referenced more often. In areas that are not covered by the PLSS this same principle applies. There may be road intersections, control monuments or corners of municipal boundaries that are used commonly as a starting point for land descriptions. Each jurisdiction that collects and maintains cadastral information would need to identify what they would consider to be Corners of Common Usage. Generally these corners would be at one to two mile spacing in rural areas and block-by-block to one half mile to spacing in urban areas.

Grid or Cell Reference System – This is the primary division of parcels that is used for parcel mapping and parcel reference. In the public domain states the divisions of the Public Land Survey System (Township, section and section divisions) form the grid or cell reference system for mapping and legal descriptions. In non-public domain areas there may be municipal or town divisions with further divisions into map sheets or other regular divisions. As examples, the State Plane Coordinate System may be used to define a mapping grid cell or Tax Map Shed (TMS) system may

be used to define a grid or cell reference system. Each jurisdiction will describe this Gird/Cell system and will include a description of the system in their metadata. The requirement of the Grid/Cell System is to uniquely cover the jurisdiction.

Hydrography - Sufficient hydrography to support the definition of cadastral features. These are generally meanderable water bodies or water that may form the extent of riparian boundaries. In Coastal areas this includes tidal limit definitions as possible.

Significant Cadastral Reference Features – These are areas and features that define the primary levels of nested legal descriptions. As examples this might be the exterior boundaries of subdivisions or the boundaries of large public land holdings. It is expected that these features will not cover the entire jurisdiction but will be important landmarks or features for understanding and using parcel information.

4.3 Parcels

Parcel Outline (Polygon) - This is geographic extent of the parcel, the parcel boundaries forming a closed polygon. The collection of parcel outlines forms the parcel map.   The parcel polygon may not be part of the data set that is published or distributed, but if it is available it should be included.

Parcel Centroid - This is a point within the parcel that can be used to attach related information. The parcel centroid provides a general point location of the parcel.

Parcel ID - A unique identifier for the parcel as defined by the jurisdiction. It should be unique across the jurisdiction.

Geometry Source Reference - This is a pointer to or an attribute describing the source reference for the parcel. This can be a document number or the volume/page or a map or survey. The geometry source reference should describe the source of the parcel geometry, either the centroid or the parcel outline.

Geometry Source Reference Date - The date of the geometry source reference referred to in the Geometry Source Reference. This date is a general indication of the currency of the parcel geometry.

Owner Source Reference – This is a pointer to or an attribute describing the source reference for the current owner of record. This may be different than the geometry source reference.

Owner Reference Date - The date of the owner source reference referred to in the Owner Source Reference. This date is a general indication of the currency of the parcel ownership records.

Owner Type - The type of ownership is the classification of owner. The initial domain of values for this attribute is:

> tribal
> federal
> state
> county
> local/municipal
> private
> not for profit
> other
> unknown

Improved - This is an attribute to indicate whether or not there is an improvement on the parcel. Each jurisdiction will provide a definition of improvement in their metadata. As examples, is a driveway an improvement, must there be a structure, or must there be an improvement assessment?

4.4 Parcels - Core Plus

The core plus attributes are the attributes that add value to the parcel information and make the information more functional in many applications for the business processes. These are called Core Plus because these attributes have considerable variation from jurisdiction to jurisdiction. For example, owner name is a core plus attribute. Parcels can have many owners and these names can be collected and managed in a variety of formats and with a wide variety of rules governing the use of the attributes. For example corporate names may be stored as a last name entry, the names may be all in one attribute, the names may be parsed into several fields, or a jurisdiction may not include the names of justice workers as a security measure. If the names are included in the core plus elements, the metadata for the information will need to describe how names are captured, any rules for hiding names, and any distribution or access policies related to the release of names.

Owner Name - An indication of the owner name. This may not be the same as the name to which the tax bill is directed. This may be multiple fields and will have rules for how it is captured and presented.

Assessment / Value Information - This information is important to many of the business processes. This information generally includes:

Improved Value

Land Value

Total Value

Additional value information may include secondary building values. In some areas these are included with the total improved value and in other areas they are tracked separately.

Assessment Metadata – The basis for establishing the value must also be known and reported in the metadata. Some of the metadata that should be considered is as follows.

Assessment basis - For example is this market value or some percentage of market value?

What is included in the assessment analysis, such as soil type, slope, roof type, number and type of windows, number of rooms and building sizes?

When was the assessment determined? An outdated assessment may be quite different than a current assessment.